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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/654,394 | 09/01/2000 | Susumu Yasuda | 35.C14758 | 6267 |

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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

| EXAMINER | |
|---|---|
| ALLEN, DENISE S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2872 | |

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/654,394 | YASUDA ET AL. | |
| | Examiner | Art Unit | |
| | Denise S Allen | 2872 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *31 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *7-10,12-15,17-20,22-25 and 27-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,11,16,21 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 5, 2004 has been entered.

### *Response to Arguments*

Applicant's arguments, see pages 13 – 14, filed February 5, 2004, with respect to claim 1 have been fully considered and are persuasive.

The rejection of claims 1 - 3 under 35 U.S.C. 102(b) as being anticipated by Witschi et al in the Office Action on December 1, 2003 has been withdrawn.

The rejection of claims 1, 4, 5, 21, and 26 under 35 U.S.C. 103(a) as being unpatentable over Jerman et al in view of Witschi et al in the Office Action on December 1, 2003 has been withdrawn.

The rejection of claims 6, 11, and 16 under 35 U.S.C. 103(a) as being unpatentable over Witschi et al in view of Jerman et al in the Office Action on December 1, 2003 has been withdrawn.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 – 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witschi et al.

Regarding claim 1, Witschi et al teaches an electromagnetic actuator (Figure 3b) comprising: a core (reference 13) with a coil (reference 19) wound around; two stators (references A and A') magnetically coupled to each end of said core; a movable element (reference 23) which is displaceable relative to said stators; and supporting means for supporting said movable element (Figure 4 reference 45), wherein said stators and said movable element each have a projection and a depression (Figure 3b references 21 and 25) in such a way that the projection and depression of said stators engage with the projection and depression of said movable element, side surfaces of the projection and depression partially over lapping even if there is no electromagnetic force (Figure 3a). Witschi et al does not teach the side surfaces of the projection and depression being parallel to the displacement direction of the movable element.

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the side surfaces of the projection and depression being parallel to the displacement direction of the movable element in order to simplify the manufacturing of the projection and depression.

Regarding claim 2, Witschi et al teaches the supporting means and the stator are fixed onto a substrate (Figure 4 the rod extending upward from reference 35).

Regarding claim 3, Witschi et al teaches the supporting means, the stator, and the movable element are made of the same material (page 4 lines 22 – 23, 31 – 32, and 46).

Claims 4 – 6, 11, 16, 21, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witschi et al in view of Jerman et al.

Regarding claim 4, Witschi et al teaches an electromagnetic actuator as described above. Witschi et al does not teach the supporting means is a parallel hinge spring made up of a plurality of flat springs combined in parallel, and the projections and depressions of said stator and the projections and depressions of said movable element are formed like comb-teeth parallel to the direction of movement of said parallel hinge spring.

Jerman et al teaches an actuator (Figure 5) with projections and depression (references 427 and 432) and a supporting means that is a parallel hinge spring (references 437 and 438) made up of a plurality of flat springs combined in parallel, and the projections and depressions of said stator and the projections and depressions of said movable element are formed like comb-teeth parallel to the direction of movement of said parallel hinge spring. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the parallel hinge spring of Jerman et al in the electromagnetic actuator of Witschi et al in order to support the movable element in a preferred position when there is no electromotive force.

Regarding claim 5, Witschi et al teaches an electromagnetic actuator as described above. Witschi et al does not teach the supporting means is a concentric hinge spring combining a plurality of flat springs in a concentric radial form, and the projections and depressions of said stator and the projections and depressions of said movable element are formed like comb-teeth parallel to the direction of movement of said concentric hinge spring.

Jerman et al teaches an actuator (Figure 3) with projections and depression (references 427 and 432) and a supporting means that is concentric hinge spring (reference 256) combining a plurality of flat springs (references 213 and 214) in a concentric radial form, and the projections and depressions of said stator and the projections and depressions of said movable element are

formed like comb-teeth parallel to the direction of movement of said concentric hinge spring. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the concentric hinge spring of Jerman et al in the electromagnetic actuator of Witschi et al in order to enable rotation of the movable element.

Regarding claim 6, 11, 16, 21, and 26, Witschi et al teaches an electromagnetic actuator as described above. Witschi et al does not teach an optical scanner with a movable mirror.

Jerman et al teaches an optical scanner (Figure 5) with a movable mirror (reference 403). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the mirror of Jerman et al with the electromagnetic actuator of Witschi et al in order to scan a light beam.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (571) 272-2305. The examiner can normally be reached on Monday - Friday, 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Denise S Allen
Examiner
Art Unit 2872

dsa

Audrey Chang
Primary Examiner
Technology Center 2800